# MONTANA DEPARTMENT OF TRANSPORTATION WETLAND MITIGATION MONITORING REPORT: YEAR 2002

American Colloid Mitigation Site Alzada, Montana



Prepared for:

MONTANA DEPARTMENT OF TRANSPORTATION 2701 Prospect Avenue Helena, MT 59620-1001

March 2003

Project No: 130091.037

Prepared by:

LAND & WATER CONSULTING, INC. P.O. Box 8254 Missoula, MT 59807



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Appendix B: Completed 2002 Wetland Mitigation Site Monitoring Form

Completed 2002 Bird Survey Forms

Completed 2002 Wetland Delineation Forms

Completed 2002 Field and Full Functional Assessment Forms

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MDT Addendum Attachments (Plan Sheets)

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GPS Protocol



### 1.0 INTRODUCTION

This annual report summarizes methods and results from the first year (2002) of monitoring for the Montana Department of Transportation's (MDT) American Colloid mitigation site. The American Colloid wetland mitigation site was constructed in October 2001 to mitigate 4.4 acres of unavoidable wetland impacts associated with the following MDT projects: Alzada-West and Alzada-South (Sickerson 2002), in MDT Watershed # 16 - Little Missouri River basin in the Glendive District. The wetland site was constructed to encompass 5 acres and includes a 10-acre buffer zone; the entire 15 acres have been fenced (MDT 1999, MDT 2001). The wetland mitigation site is located in Carter County, Montana, near the community of Alzada, Section 36, Township 9 South, Range 58 East (**Figure 1**). The mitigation wetland was constructed in July and August of 2001 in an ephemeral drainage (**Figure 2**, **Appendix A**). Elevation is approximately 3,518 feet above sea level.

### 2.0 METHODS

### 2.1 Monitoring Dates and Activities

The American Colloid wetland was monitored on August 8, 2002. All information contained within the Wetland Mitigation Site Monitoring Form (**Appendix B**) was collected at this time. Activities and information conducted/collected included: wetland delineation; wetland/open water boundary mapping; vegetation community mapping; vegetation transects; soils data; hydrology data; bird and general wildlife use; photograph points; GPS data points; functional assessment; and maintenance assessment of any inflow/outflow structures (non-engineering).

### 2.2 Hydrology

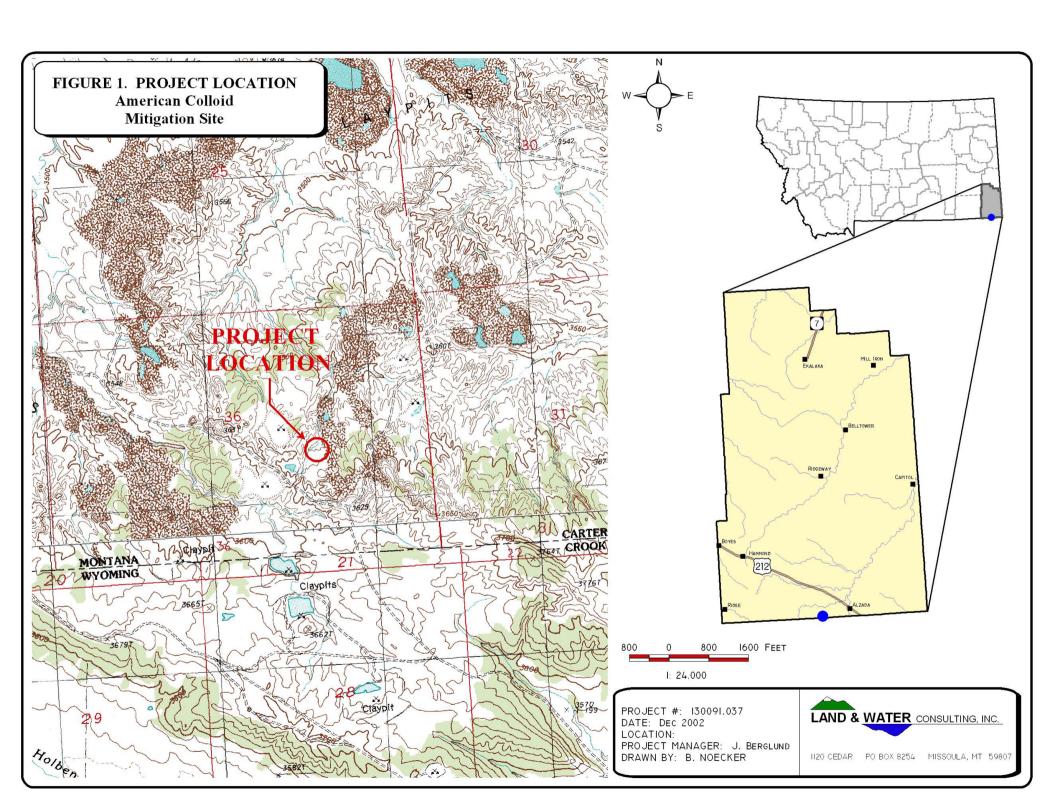
Wetland hydrology indicators were recorded using procedures outlined in the US Army Corps' (COE) 1987 Wetland Delineation Manual (Environmental Laboratory 1987). Hydrology data were recorded on the Routine Wetland Delineation Data Form (**Appendix B**) at each wetland determination point. Precipitation data for the year 2002 were compared to the 1948-2001 average (WRCC 2002).

All additional hydrologic data were recorded on the mitigation site monitoring form (**Appendix B**). The boundary between emergent vegetation and open water was mapped on the aerial photograph (**Figure 3, Appendix A**). There are no groundwater monitoring wells at the site.

### 2.3 Vegetation

General vegetation types were delineated on an aerial photograph during the site visit (**Figure 3**, **Appendix A**). Coverage of the dominant species in each community type is listed on the monitoring form (**Appendix B**). A comprehensive plant species list for the entire site was compiled and will be updated as new species are encountered. Observations from past years will be compared with new data to document vegetation changes over time. Woody species were not planted at this site.





The location of the transect is shown on **Figure 2**, **Appendix A**. Percent cover for each species was recorded on the vegetation transect form (**Appendix B**). Transect ends were marked with metal fence posts and their locations recorded on the vegetation map. Photos of the transect were taken from both ends during the site visit.

### 2.4 Soils

Soils were evaluated during the site visit according to the procedure outlined in the COE 1987 Wetland Delineation Manual. Soil data were recorded for each wetland determination point on the COE Routine Wetland Delineation Data Form (**Appendix B**).

### 2.5 Wetland Delineation

A wetland delineation was conducted within the monitoring area according to the 1987 COE Wetland Delineation Manual. Wetland and upland areas within the monitoring area were investigated for the presence of wetland hydrology, hydrophytic vegetation and hydric soils. The indicator status of vegetation was derived from the National List of Plant Species that Occur in Wetlands: North Plains Region 4 (Reed 1988). The information was recorded on the COE Routine Wetland Delineation Forms (**Appendix B**). The wetland/upland and open water boundaries were used to calculate the wetland area.

### 2.6 Mammals, Reptiles, and Amphibians

Mammal, reptile, and amphibian species observations were recorded on the wetland monitoring form during the site visit (**Appendix B**). Indirect use indicators were also recorded including tracks, scat and burrows. A comprehensive wildlife species list for the entire site was compiled and will be updated as new species are encountered. Observations from past years will be compared with new data to determine if wildlife use is changing over time.

### 2.7 Birds

Bird observations were recorded during the site visit according to the established bird survey protocol (**Appendix D**). A general, qualitative bird list has been compiled using these observations. Observations will be compared between years in future studies.

### 2.8 Macroinvertebrates

No macroinvertebrate samples were collected on the site.

### 2.9 Functional Assessment

A functional assessment form was completed in 2002 for the American Colloid mitigation site using the 1999 MDT Montana Wetland Assessment Method. Field data necessary for this assessment were collected on a condensed data sheet included in the mitigation site monitoring form. The remainder of the assessment was completed in the office (**Appendix B**).



### 2.10 Photographs

Photographs were taken showing the current land use surrounding the mitigation site, the wetland buffer, the monitored area, and the vegetation transect (**Appendix C**). A description and compass direction for each photograph were recorded on the wetland monitoring form. During the 2002 monitoring season, each photo-point was marked on the ground with a wooden stake and the location recorded with a resource grade GPS. The approximate locations are shown on **Figure 2, Appendix A**. All photographs were taken using a 50 mm lens.

### **2.11 GPS Data**

During the 2002 monitoring season, survey points were collected using a resource grade Trimble, Geoexplorer III hand-held GPS unit (**Appendix E**). Points collected included: the vegetation transect beginning and ending locations; photograph locations; and the delineated wetland boundary. In addition, survey points were collected at several landmarks recognizable on the air photo for purposes of line fitting to the topography.

### 2.12 Maintenance Needs

No bird boxes were located within this site. The outflow structure was checked for obstructions.

### 3.0 RESULTS

### 3.1 Hydrology

The American Colloid mitigation site was constructed in 2001 to be a 5-acre wetland within a reclaimed bentonite mining site (MDT 1999). The source of hydrology for the wetland mitigation site is stormwater runoff that is retained by an earthen embankment. Stormwater enters the project area from the watershed located primarily to the east of the wetland mitigation site, and to a lesser extent from the southwest. Water exits the site through culverts in the earthen embankment. During the August 8, 2002 visit, the site had shallow standing water in 55% of the wetland.

Precipitation data for the Albion 1N station indicate that the yearly average (1944-2001) is 14.2 inches (WRCC 2002); through the month of July the average precipitation was 9.32 inches. During 2002, precipitation through the month of July was 7.65 inches or 82% of the average. Montana, particularly the eastern portion of the state, has been in a drought cycle for the fourth consecutive year.

### 3.2 Vegetation

Vegetation species identified within the wetland are presented in **Table 1** and in the monitoring form (**Appendix B**). Two (2) vegetation communities are mapped on the mitigation area map (**Figure 3, Appendix A**). The communities include: Type 1, *Grindelia squarrosa*/



*Chrysothamnus* spp. and Type 2, *Spartina pectinata*. Dominant species within each community are listed on the monitoring form (**Appendix B**).

Table 1: 2002 American Colloid Wetland Mitigation Vegetation Species List

Scientific Name	Common Name	Indicator Status
Agropyron cristatum	crested wheatgrass	*
Atriplex argentea	silver-scale saltbush	FACU
Chrysothamnus spp.	rabbit brush	*
Grindelia squarrosa	curly-cup gumweed	FACU
Puccinellia nuttalliana	Nuttall's alkali grass	OBL
Sarcobatus vermiculatus	black greasewood	FACU
Spartina pectinata	prairie cordgrass	FACW

<sup>\*</sup> Not included in the Wetland Indicator manual; NI-No Indicator; insufficient data according to the manual.

The vegetation transect results are detailed in the monitoring form (**Appendix B**) and are summarized below.

- 2	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
9	Transect 1 Start	Upland	Wetland	Total 228'	End
1		Type I (36')	Type 2 (192')		Transect 1

### 3.3 Soils

The site was mapped as part of the Carter County Soil Survey. The soil series mapped by the NRCS within the mitigation site is Neldore –Rock Outcrop Complex (Map Unit 58D). The complex is a non-hydric and well drained with clay loam inclusions. The dominant parent material is semiconsolidated shales.

Soils were sampled at one wetland location (SP-1) and one upland (SP-2). Soils at SP-1 were a very dark gray (10YR 3/1) clay from 0-18 inches. Saturation and oxidized root channels were noted throughout the profile. Soils at SP-2 were a black (10YR 2/1) clay loam from 0-18 inches. Soils within both pits qualify as hydric as a result of the low-chroma colors.

### **3.4 Wetland Delineation**

The delineated wetland boundary is depicted on **Figure 3**, **Appendix A**. The delineation resulted in 0.69 acre of gross wetland area within the constructed basin; the 0.69 acre is comprised of 0.38 acre of shallow (<4' estimated) open water and 0.31 acre of net wetland area. The COE data forms are included in **Appendix B**.

### 3.5 Wildlife

Wildlife species are listed in **Table 2**; no signs were observed during the site visit. It had rained the day of the visit and dark clouds and lightening were threatening more storms. Wildlife observations are typically scarce during these heavy or impending storm events. No bird boxes have been installed at this site.



 Table 2. Wildlife Species Observed at the American Colloid Mitigation Site - 2002

BIRDS	
none	
MAMMALS	
none	

### 3.6 Macroinvertebrates

No macroinvertebrate samples were collected on the site.

### 3.7 Functional Assessment

Completed functional assessment forms are included in **Appendix B** and summarized below in **Table 3**. The mitigation site has been rated as a Category III wetland primarily as a result of the moderate to high ratings in the water storage and sediment removal variables.

Table 3: Summary of 2002Wetland Function/Value Ratings and Functional Points at the American Colloid Wetland Mitigation Project

Function and Value Parameters From the 1999 MDT Montana Wetland Assessment Method	2002
Listed/Proposed T&E Species Habitat	Low (0)
MNHP Species Habitat	Moderate (.6)
General Wildlife Habitat	Moderate (.4)
General Fish/Aquatic Habitat	NA
Flood Attenuation	Moderate (.4)
Short and Long Term Surface Water Storage	High (.8)
Sediment, Nutrient, Toxicant Removal	Moderate (.6)
Sediment/Shoreline Stabilization	Moderate (.7)
Production Export/Food Chain Support	Moderate (.6)
Groundwater Discharge/Recharge	NA
Uniqueness	Low (.3)
Recreation/Education Potential	Moderate (.5)
Actual Points/Possible Points	4.9/10
% of Possible Score Achieved	49%
Overall Category	III
Total Acreage of Assessed Wetlands within Monitoring Area	0.69
Total Functional Units (acreage x actual points)	3.38
Net Acreage Gain ("new" wetlands)	0.69
Net Functional Unit Gain (new acreage x actual points)	3.38

### 3.8 Photographs

Representative photos taken from photo points and transect ends are included in Appendix C.



### 3.9 Maintenance Needs/Recommendations

The outflow culverts were functioning at the time of the site visit; no maintenance was required.

### 3.10 Current Credit Summary

The American Colloid wetland mitigation site was constructed in October 2001 to mitigate 4.4 acres of unavoidable wetland impacts associated with the following MDT projects: Alzada-West and Alzada-South (Sickerson 2002), in MDT Watershed #16. The site was anticipated to be 5 acres with a 10-acre buffer zone and is completely fenced (MDT 1999). The mitigation site was constructed in October 2001 and therefore had less than one full growing season to develop. As of July 2002, 0.69 acre of gross wetland area had developed at the mitigation site, which is comprised of 0.38 acre of shallow (<4' deep) open water and 0.31 acre of net wetland area. Because open water component is shallow with a potential for supporting emergent vegetation, the entire 0.69 acre should be credited as wetland area.

The American Colloid mitigation wetland is rated as a Category III wetland primarily as a result of the moderate to high ratings in the water storage and sediment removal variables.

### 4.0 REFERENCES

- Berglund, J. 1999. *MDT Montana Wetland Assessment Method*. Prepared for Montana Department of Transportation. May 1999.
- Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*. US Army Corps of Engineers. Washington, DC.
- Reed, P.B. 1988. National list of plant species that occur in wetlands: North Plains (Region 4). Biological Report 88(26.4), May 1988. U.S. Fish and Wildlife Service. Washington, D.C.
- Montana Department of Transportation, 1999. Revised Preliminary Field Review Report.
- Montana Department of Transportation, 2001. Addendum, Attachments 1-3.
- Sickerson, L. 2002. Wetland Mitigation Specialist, Montana Department of Transportation. Helena, MT. December 2002 E-mail Correspondence.
- USDA Natural Resource Conservation Service. Soil Survey of Carter County, Montana.
- Western Regional Climate Center, 2002. Albion 1N, MT Station: http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?mtalbi.

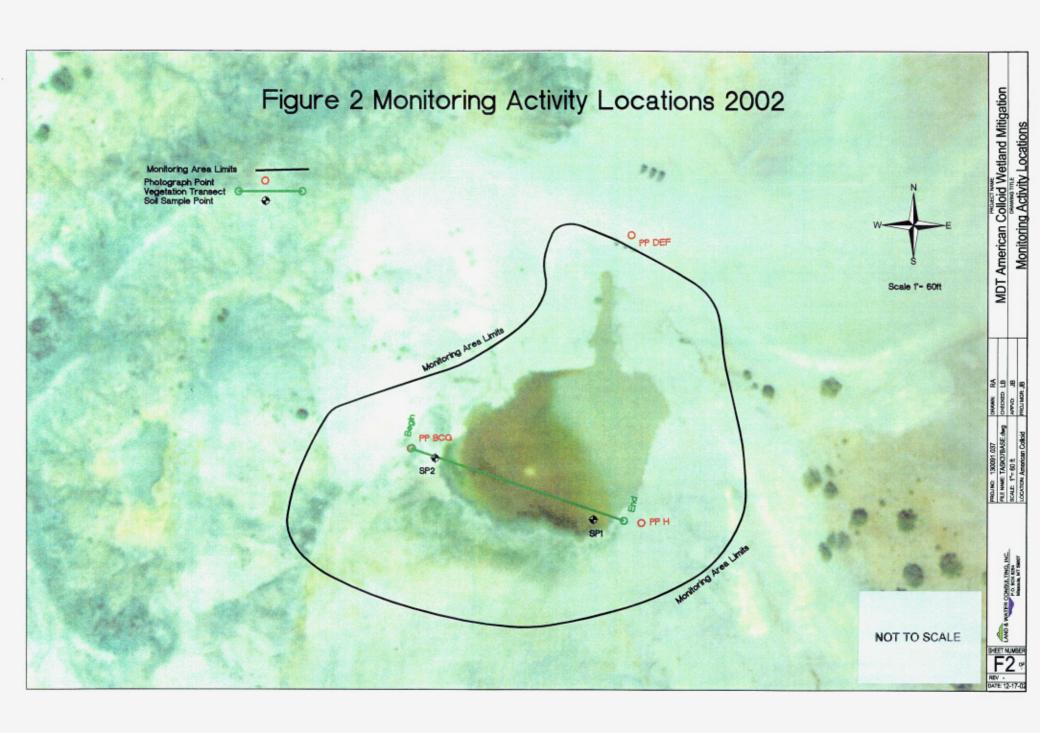


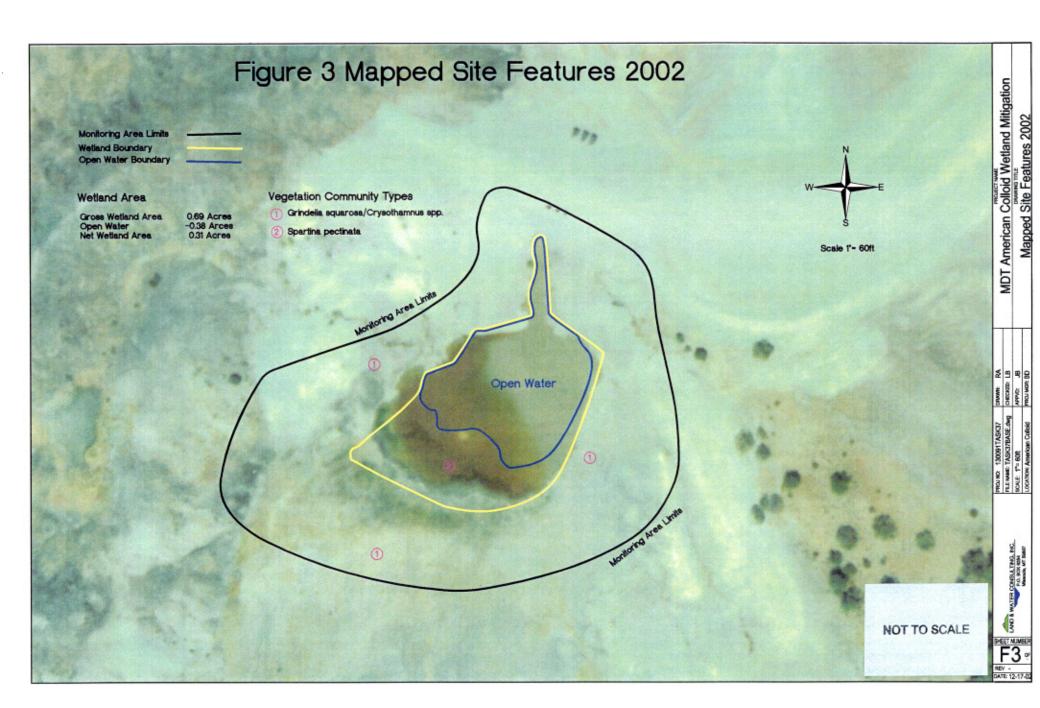
## Appendix A

## FIGURES 2 - 3

MDT Wetland Mitigation Monitoring American Colloid Mitigation Site Alzada, Montana







## Appendix B

COMPLETED 2002 WETLAND MITIGATION SITE MONITORING FORM
COMPLETED 2002 BIRD SURVEY FORMS
COMPLETED 2002WETLAND DELINEATION FORMS
COMPLETED 2002 FIELD AND FULL FUNCTIONAL
ASSESSMENT FORMS

MDT Wetland Mitigation Monitoring American Colloid Mitigation Site Alzada, Montana





1

## LWC / MDT WETLAND MITIGATION SITE MONITORING FORM

			Project Numb	er:130091	-037	Assessmer	nt
	7 / 18 / 02		-i-+-#16 Cl	dina District I	ittle Misseywi I	Divon bosin Mile	maat.
			rict: #16 – Glend				epost:
			Section_36_				D/I WC
weath	er Conditions:	_neavy overcas	st, lightening '_02_ Visit #:_1	_ rerson(s) co	ng Veor: 20	002	B/LWC
Circo	Evaluation Date	0.60 pare	_02_ visit #:_1 es Land use sur	rounding wetla	nd bentonit	e mine	
Size o	evaluation are	a:0.09 <u>acre</u>	ES Land use sur	Touriding wena	nd. bentome	e mme	_
			нур	ROLOGY			
Inunda Assess Depth If asse	sment area unde at emergent ve ssment area is r	X Absent er inundation:	Average 55_% vater boundary:_ re the soils satur	_0 <u>_ft</u> ated w/in 12" o	f surface: Yes_	_XNo	
Other	evidence of hyd	lrology on site (	drift lines, erosi	ion, stained veg	etation etc.):	water lines, sta	ined veg.
	ndwater						
	toring wells: Pr						
Recor	d depth of water			5 4	777 11 //	D 4	
	Well #	Depth	Well #	Depth	Well #	Depth	
						75.5	
X X elevat	Observe extentions (drift lines	t vegetation-ope t of surface wate , erosion, vegeta	en water bounda er during each s ation staining et nitoring wells lo	ite visit and loo c.)	k for evidence	of past surface v	water
СОМ	MENTS/PRO	BLEMS:	veg within open	water negligib	le		
							/
-							



### VEGETATION COMMUNITIES

Community No.:\_\_1\_ Community Title (main species):\_\_Grindelia squarosa/Chrysothamnus spp.\_\_

Dominant Species	% Cover	Dominant Species	% Cover
CHRYSOTHAMNUS spp.	5	•	
GRISQU	5		
(bare dirt)	90		
			X
COMMENTS/PROBLEMS: _UPL of	community with 90	0% bare dirt	
Community No.:_2 Community Tit	tle (main species):	Spartina pectinata	
Dominant Species	% Cover	Dominant Species	% Cover
SPAPEC		(MUD)	(30%)
(mud)	(50)		, ,
(mas)			
COMMENTS/PROBLEMS:			
Community No.:_ Community Title (n	nain species):		( = <u></u>
			10/ C
Community No.:_ Community Title (n	nain species):	Dominant Species	% Cover
			% Cover
Dominant Species			% Cover
Dominant Species			% Cover
Dominant Species			% Cover
Dominant Species			% Cover
Dominant Species			% Cover

### COMPREHENSIVE VEGETATION LIST



Species	Vegetation Community Number(s)	Species	Vegetation Community Number(s)
Agropyron cristatum	1		T (dilloci(o)
Atriplex argentea	1		
Chrysothamnus spp.	1		
Grindelia squarrosa Puccinellia nuttalliana	1		
Puccinellia nuttalliana	2		
Sarcobatus vermiculatus	1		
Spartina pectinata	2		
			2.
		le .	

COMMENTS/PROBLEMS:		
OMMENTS/PROBLEMS:		



### PLANTED WOODY VEGETATION SURVIVAL

Species	Number Originally Planted	Number Observed	Mortality Causes
one			
			1
COMMENTS/PROBLEMS:			
			+

### WILDLIFE



### BIRDS

esting structures being utilized? Yes No  MAMN  Species		ng structures	need repa	irs? Yes	No
	AATCAND HEDD				
Species	MALS AND HERP				
	Number Observed	Tracks	Indirect indication of use Scat Burrows Other		
one	00001100	Tracks	State	Darrows	Other
				-	
				<del>                                     </del>	



### **PHOTOGRAPHS**

Using a camera with a 50 mm lenses and color film take photographs of the following permanent reference points listed in the checklist below. Record the direction of the photograph using a compass. (The first time at each site establish a permanent reference point by setting a ½ inch rebar or fencepost extending 2-3' above ground, survey the location with a resource grade GPS and mark the location on the air photo.)

Checklist:

_X_	One photo for each of the 4 cardinal directions surrounding wetland
_X_	At least one photo showing upland use surrounding wetland - if more than one
	upland use exists, take additional photos
X	At least one photo showing buffer surrounding wetland
_X_	One photo from each end of vegetation transect showing transect

Location	Photo	Photograph Description	Compass
	Frame #		Reading
A	10	outlet	2
В	11	upland buffer	348
C/(G)	12	across wetland and beginning of transect	118
D	16	downstream of dam	35
E	14	from dam across wetland	186
F	15	from dam across wetland	220
G/(C)	12	across wetland and beginning of transect	118
Н	13	end of transect	302

COMMENTS/PROBLEMS:Photos C and G are taken from same point	
	_
GPS SURVEYING Using a resource grade GPS survey the items on the checklist below. Collect at least 3 location points with t GPS unit set at 5 second recording rate. Record file numbers fore site in designated GPS field notebook	he
Checklist:	
X Jurisdictional wetland boundaryX_(3) Landmarks recognizable on the air photoX Start and end points of vegetation transect(s)X Photo reference pointsNA Groundwater monitoring well locations	
COMMENTS/PROBLEMS:	
	_



### WETLAND DELINEATION

(Attach Corps of Engineers delineation forms)

At each site conduct the items on the checklist below:
<ul> <li>X Delineate wetlands according to the 1987 Army Corps manual.</li> <li>X Delineate wetland-upland boundary on the air photo</li> </ul>
X Survey wetland-upland boundary with a resource grade GPS survey
ASurvey wettand-upland obtainably with a resource grade of 5 survey
COMMENTS/PROBLEMS:
FUNCTIONAL ASSESSMENT (Complete and attach full MDT Montana Wetland Assessment Method field forms; also attach abbreviated field forms, if used)
COMMENTS/PROBLEMS:
Were man-made nesting structures installed at this site? YES NOX  If yes, do they need to be repaired? YES NO  If yes, describe problems below and indicate if any actions were taken to remedy the problems.
Were man-made structures build or installed to impound water or control water flow into or out of the wetland? YES X NO
If yes, are the structures working properly and in good working order? YES_X_NO If no, describe the problems below.
COMMENTS/PROBLEMS:

MDT WETLAND MONITORING – VEGETATION TRANSECT LAND & WATER B-8						
Site: American Colloid Date:	8/8/02	Examiner: LB/LWC Transect # 1				
		ection from Start G: 228 ft				
Vegetation type A:   CT 1		Vegetation type B: CT 2				
Length of transect in this type: 36'	feet	Length of transect in this type: 192'	feet			
Species:	Cover:	Species:	Cover:			
CHRYSOTHAMNUS spp.	10	SPAPEC	40			
GRISQU	10	(mud)	(60%)			
(bare dirt)	(90%)					
			7			
Total Vegetative Cover:	10%	Total Vegetative Cover:	40%			
Vegetation type C:	1 5	Vegetation type D:	- Frank			
Length of transect in this type:	feet	Length of transect in this type:	feet Cover:			
Species:	Cover:	Species:	Cover:			
Total Vegetative Cover:		Total Vegetative Cover:				

### MDT WETLAND MONITORING - VEGETATION TRANSECT (back of form) LAND & WATER B-9



Cover Estim	nate	Indicator Class:	Source:	
+=<1%	3 = 11-20%	+ = Obligate	P = Planted	
1 = 1-5%	4 = 21-50%	<ul><li>- = Facultative/Wet</li></ul>	V = Volunteer	
2 = 6 - 10%	5 = >50%	0 = Facultative		

Notes:

Percent of perimeter >50% (5) % developing wetland vegetation - excluding dam/berm structures.

Establish transects perpendicular to the shoreline (or saturated perimeter). The transect should begin in the upland area. Permanently mark this location with a standard metal fencepost. Extend the imaginary transect line towards the center of the wetland, ending at the 3 food depth (in open water), or at a point where water depths or saturation are maximized. Mark this location with another metal fencepost.

Estimate cover within a 10 ft wide "belt" along the transect length. At a minimum, establish a transect at the windward and leeward sides of the wetland. Remember that the purpose of this sampling is to monitor, not inventory, representative portions of the wetland site.



### BIRD SURVEY - FIELD DATA SHEET

Page\_1\_\_of\_\_1\_ Date: 7/4/02

SITE: American Colloid Survey Time: 11AM

Bird Species	#	Behavior	Habitat	Bird Species	#	Behavior	Habitat
none							
	- 1777						
			1				
	75.5						
						1	
	1	1					

Notes:  Very big rain storm passed through area the night before investigation and rain was threatening all during site visit; very quiet wildlife scene.						
,	, 1	Leannan and a second				

Behavior: BP - one of a breeding pair; BD - breeding display; F - foraging; FO - flyover; L - loafing; N - nesting

 $\label{eq:habitat: AB-aquatic bed; FO-forested; I-island; MA-marsh; MF-mud flat; OW-open water; SS-scrub/shrub; UP-upland buffer; WM-wet meadow, US-unconsolidated shoreline$ 



## DATA FORM ROUTINE WETLAND DETERMINATION

(1987 COE Wetlands Delineation Manual)

Designat/Cites A C. 11-13	Date: 8/8/02				
Project/Site: American Colloid	0.0.02				
Applicant/Owner: MDT	County: Carter				
Investigator: LB/LWC	State: MT				
Do Normal Circumstances exist on the site: X	Yes No Community ID: CT-2				
Is the site significantly disturbed (Atypical Situation)?	Yes X No Transect ID: 1				
Is the area a potential Problem Area?:	Yes X No Plot ID: SP-1				
	Tes X No Tieres.				
(If needed, explain on reverse.)					
VEGE	TATION				
Dominant Plant Species Stratum Indicator	Dominant Plant Species Stratum Indicator				
1 SPAPEC H FACW	9				
2	10				
3	11				
4	12				
5	13				
6	14				
7	15				
8	16				
°	10				
HYDR	OLOGY				
X Recorded Data (Describe in Remarks):	Wetland Hydrology Indicators:				
Stream, Lake, or Tide Gauge	Primary Indicators:				
X Aerial Photographs	Inundated				
Other	X Saturated in Upper 12 Inches				
No Recorded Data Available	X Water Marks				
	X Drift Lines				
Field Observations:	X Sediment Deposits				
Donth of Surface Mater:	X Drainage Patterns in Wetlands				
Depth of Surface Water: (in.)	Secondary Indicators (2 or more required):  X Oxidized Root Channels in Upper 12 Inches				
Depth to Free Water in Pit: (in.)	Water-Stained Leaves				
Don'th to Coturated Calls O. C. S. S. S.	Local Soil Survey Data  FAC-Neutral Test				
Depth to Saturated Soil: 0 (surface) (in.)					
	Other (Explain in Remarks)				
Remarks:					
pro-gr					
Area shows sign of recent stormwater inflow.					
1273000000000000000000000000000000000000					



### SOILS

Map Unit Name Neldore-rock outcrop (Series and Phase):				outcrop com	olex (58D)	Drainage Class: Field Observation	well	
			dic Ustorthents				Confirm Mapped Type? X Yes No	
Profile Description: Depth Matrix Color Mottle Colors						Mottle	Texture, Concretions,	
inches	Horizon	(Munsell I		(Munsell M		Abundance/Contrast		
0-18	A	-	R 3/1				clay loam	
	Hydric Soil Indicators:  Histosol Histic Epipedon Sulfidic Odor Aquic Moisture Regime Reducing Conditions X Gleyed or Low-Chroma Colors  Positive hydric soil indicators.  Concretions High Organic Content in surface Layer in Sandy Soils Organic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (Explain in Remarks)							
				WETLAND	DETER	MINATION		
	rtic Vegetatio Hydrology Pr		X Yes					
	oils Present?		X Yes		Is this Sam	pling Point Within a Wet	tland? X Yes No	
Remark	s:					2		
Wetlan	d develop	ing in cor	nstructed v	wetland.				

Approved by HQUSACE 2/92



## DATA FORM ROUTINE WETLAND DETERMINATION

(1987 COE Wetlands Delineation Manual)

			D.1				
	ject/Site: American Colloid		Date: 8/8/02				
	olicant/Owner: MDT	County: Carter					
Inv	estigator: _LB/LWC	State: MT					
Do	Normal Circumstances exist on the site:	X Yes No	Community ID: CT-1				
-	ne site significantly disturbed (Atypical Situation)?	Yes X No	Transect ID: 1				
	ne area a potential Problem Area?:	Yes X No	_ ·				
	If needed, explain on reverse.)	163 _X 140	Plot ID: SP-2				
	in needed, explain on reverse.)						
	VEC	GETATION					
	Dominant Plant Species Stratum Indicator		Plant Species Stratum Indicator				
1	CRYSOTHAMNUS spp. S no listing	9					
2	GRISQU S UPL	10					
3		11					
4		12					
5		13					
6		14					
7		15					
8		16					
Ŀ							
Per	cent of Dominant Species that are OBL, FACW, or FA	AC (excluding FAC-).	0/2				
No	wetland vegetation at this SP location.						
	HY	DROLOGY					
	X Recorded Data (Describe in Remarks):	Wetland Hydrold	ogy Indicators:				
	Stream, Lake, or Tide Gauge		Indicators:				
	X Aerial Photographs		Inundated				
	Other		Saturated in Upper 12 Inches				
	No Recorded Data Available		Water Marks				
			Drift Lines				
Fie	d Observations:	10 10 10 10 10 10 10 10 10 10 10 10 10 1	Sediment Deposits				
			Drainage Patterns in Wetlands				
1	Depth of Surface Water: (in.)	Seconda	ary Indicators (2 or more required):				
	Double to Fore Wester in Bit. (in )		Oxidized Root Channels in Upper 12 Inches				
	Depth to Free Water in Pit: (in.)		Water-Stained Leaves				
	Depth to Saturated Soil: - (in.)		Local Soil Survey Data FAC-Neutral Test				
	Depth to Saturated Soil.		Other (Explain in Remarks)				
			Other (Explain in Remarks)				
Re	marks:						
NI.	avidance of watland hydrology						
INO	evidence of wetland hydrology.						
1							



### SOILS

and Phase): ny (Subgrou Description					Drainage Class:	well			
	p): Aridic				Field Observation		1275		
Description		Ustorthen	ts		Confirm Mapped	Type? X	Yes		No
Jescription	:				Note that the second				
	Matrix Color		Mottle Cold		Mottle	Texture,		tions,	
Horizon	(Munsell Mo	ist)	(Munsell M	oist)	Abundance/Contrast	Structure	e, etc.		
A	10YR 2	2/1					sand		
S R X	ulfidic Odor quic Moisture educing Cond leyed or Low-	Regime litions Chroma C in indicatio	n of hydric co	H O Li Li O O onditions.	igh Organic Content in rganic Streaking in Sa sted on Local Hydric S sted on National Hydr ther (Explain in Rema	andy Soils Soils List ric Soils List	er in Sa	ndy Se	oils
	esent?	Yes Yes X Yes	X No	Is this Sam	pling Point Within a Wet	land?	Yes	х	No
s:									
area with lov	w-chroma soils	<b>5</b> .							
	A Soil Indicate H H So X R X G ma layer pres tic Vegetation Hydrology Presils Present?	A 10YR 2  Soil Indicators:  Histosol Histic Epipedon Sulfidic Odor Aquic Moisture Reducing Cond X Gleyed or Low- ma layer present, therefore a  tic Vegetation Present? Hydrology Present? Sils Present?	A 10YR 2/1  Soil Indicators:  Histosol Histic Epipedon Sulfidic Odor Aquic Moisture Regime Reducing Conditions X Gleyed or Low-Chroma Coma layer present, therefore an indication  tic Vegetation Present? Hydrology Present? Yes Hydrology Present? X Yes S:	A 10YR 2/1  Soil Indicators:  Histosol Histic Epipedon Sulfidic Odor Aquic Moisture Regime Reducing Conditions X Gleyed or Low-Chroma Colors  ma layer present, therefore an indication of hydric colors  wette Vegetation Present? Hydrology Present? Yes X No Hydrology Present? Yes X No Hydrology Present? X Yes No No S:	A 10YR 2/1    Soil Indicators:   Histosol	Soil Indicators:  Histosol Histic Epipedon Sulfidic Odor Aquic Moisture Regime Reducing Conditions X Gleyed or Low-Chroma Colors  WETLAND DETERMINATION  Tic Vegetation Present? Hydrology Present? X Yes No Is this Sampling Point Within a Wet is:	A 10YR 2/1    Soil Indicators:   Histosol	A 10YR 2/1 sand  Soil Indicators:  Histosol Concretions High Organic Content in surface Layer in Sandy Soils Aquic Moisture Regime Listed on Local Hydric Soils List Reducing Conditions Listed on National Hydric Soils List Other (Explain in Remarks)  METLAND DETERMINATION  Tic Vegetation Present? Yes X No Hydrology Present? Yes X No Is this Sampling Point Within a Wetland? Yes Is:  Signature 1	A 10YR 2/1 sand  Soil Indicators:  Histosol Histic Epipedon Sulfidic Odor Aquic Moisture Regime Reducing Conditions X Gleyed or Low-Chroma Colors  Malayer present, therefore an indication of hydric conditions.  WETLAND DETERMINATION  Tic Vegetation Present? Yes X No Hydrology Present? Yes X No No Is this Sampling Point Within a Wetland?  Yes X  Sis:

Approved by HQUSACE 2/92



Site: American Collact By: UB/LUC Field Data Sheet for 1999 MDT Wetland Assessment Form Brief Description: Estimated AA Size (Circle Ac.): <1 1-5 >5 HGM Class (CIRCLE) Cowardin Class Est % Predominant Water Regime (CIRCLE) of AA Mineral Soil Flats Emergent Sem Perm Flood Seas Flood Sat) Tem Flood (Int Flood Perm Flood Int Exp Organic Soil Flats Aquatic Bed Perm Flood Seas Flood Sat Tem Flood Int Flood Int Exp Sem Perm Flood Riverine (nonperennial) Riverine (upper perennial) Moss-Lichen Perm Flood Int Exp Sem Perm Flood Seas Flood Sat Tem Flood Int Flood Riverine (lower perennial) Lacustrine Fringe Scrub-Shrub Perm Flood Int Exp Sem Perm Flood Seas Flood Tem Flood Int Flood Depression (closed) Forested Perm Flood Int Exp Sem Perm Flood Seas Flood Sat Tem Flood Int Flood Depression (open, groundwater) Unconsolidated Bottom Perm Flood Seas Flood Tem Flood Int Flood Int Exp Sem Perm Flood Depression (open, surface water) Other: Perm Flood Int Flood Int Exp Sem Perm Flood Seas Flood Sat Tem Flood Slope Organic Soil Flats 35% Total Estimated % Vegetated RELATIVE ABUNDANCE: rare com. DISTURBANCE is: High Moderate 1-5 HYDROLOGY: Max. acre-ft surf. water at wetlands in AA subject to inundation: <1 >5 (if no flooding/ponding, go to groundwater\* section) Does AA contain surface or subsurface outlet? N If outlet present, is it restricted (subsurface will always be "yes")? Y Longest duration of surface water: Surface Water Duration and other attributes (circle) at any wetlands within AA Perm / Peren Seas / Intermit Temp / Ephem in at least 10% of AA (both wetlands and nonwetlands [deepwater, streambed...] Perm / Peren Seas / Intermit Temp / Ephem Where fish are or historically were present (circle NA if ngt applicable) Seas / Intermit Temp / Ephem Penn / Peren £10% % of waterbody containing cover objects >25% 10-25% 50-74% <50% % bank or shore with riparian or wetland shrub or forested communities >75% adjacent to roofed wetland regetation along a defined watercourse or shoreline subject to wave Seas / Intermit Temp / Ephem Perm / Peren action (circle NA if not applicable) 35-64% <35% % cover of wetland bank or shore by sp. with binding roomasses >65% go to groundwater\* section below) Flood Attenuation: Do any wetlands on site flood as a result of in-channel or overbank flow? Y Estimated wetland area subject to periodic flooding (acres): Estimated % of flooded wetland classified SS, FO or both: ≥75 \*Evidence of groundwater discharge or recharge? Y 1 Known List: HABITAT Habitat for Listed or Proposed Threatened, Endangered, or Montana Natural Heritage Program S1, S2, or S3 Plants or Animals: AA is Documented (D) or Suspected (S) to contain (circle based on definitions contained in instructions): D S MNHP: Primary or critical habitat (list species) D S T/E: Secondary habitat (list species) D S T/E Incidental habitat (list species) D S. MNHP: D S T/E D'S MNHP No usable habitat T/E Wildlife observations? Fish observations? OTHERS Do wetlands have potential to receive excess sediments, nutrients, or toxicants? On TMDL List? high levels Potential to receive: low to moderate levels loes site contain bog, fen, warm springs, >80 year-old forested wetland, or MNHP "S1" of "S2" plant association? N BURT COLL BLUE TOORFICK-Dute stral Is AA a known recreation / education site? Does AA offer strong potential for use as recreation / education site?

(Abbreviations: system Peastwell? Subsyst: none Classes Rock Botton (tp.), Unconsolidated bottom (tp.), Acusto Bed (JB), Unconsolidated Shorn (US), Mass done Westerd (TO) System: Lancevine (JC), Subsyst: Limited (TO) Classes: Ro. UR, All Subsystem: United (VC) Classes: Ro. UR, All Subsystem: United (VC) System: Lancevine (JC), Subsystem: United (VC) Classes: Ro. UR, All Subsystem: United (VC), UR, All Subsystem: United (VC) Classes: Ro. UR, All Subsystem: United (VC), UR, UR, UR, UR, UR, UR, UR, UR, UR, UR	1. Project Name: Ame	T Montana We	tland As	sessment 2. Project #: _\^	Form (revi 30001 - 0	sed 5/2 8フ	(5/1999)	WATER	
III. Watershed:	3. Evaluation Date: Mo. 7	0ay <u>18 Yr.O2</u> 4.1	Evaluator(s):	B/Lh	)C5.We	tlands/Site	#(s)		
Other Location Information: 7. a. Evaluating Agency: 8. Wetland size: (lotal acres) 9. Purpose of Evaluation: 9. Assessment area: (AA, td., ec., (visually estimated) 9. Assessment area: (AA, td., ec	6. Wetland Location(s): I, Lega II. Approx. Stationing or I	nl: T <u>9</u> N o(\$) R <u>&lt;</u>	δW;S.	250	:TN	or S; R	_E & W; S		<u></u> :
b. Purpose of Evaluation:  1. Weldinds potentially effected by MDT project  2. Mitigation wetlands; pre-construction  3. Mitigation wetlands; pre-construction  4. Other  10. Classification of Wetland and Aquatic Habitats in AA (HGM according to Brinson, first col.; USPWS according to Covardin (1976); remaining cols  HGM Class  System  Class Water Regime Modifier % 6  10. Classification of Wetland and Aquatic Habitats in AA (HGM according to Brinson, first col.; USPWS according to Covardin (1976); remaining cols  HGM Class  System  Class Water Regime Modifier % 6  Em LTF G E GE  ELIVEDITICE  PUNCTICE  LIVEDITICE  LIVEDITICE  LIVEDITICE  ADDITICE  LIVEDITICE			S Reference	No. (if applies):					
HGM Class System Subsystem Class Water Regime Modifier % of PALISTICS PAUSAINE PAUSAINE FOR SUBSYSTEM Subsystem United States And St	b. Purpose of Evaluation:  1Wetlands potentially  2Mitigation wetlands;  3Mitigation wetlands;  4Other	affected by MDT project pre-construction post-construction	9. Ass see in:	ossment area: ( structions on dete	AA tot., ac., rmining AA)	9 (me	asured, e.g. by GP:(visually estim g(measured, e.	nated) g. by GPS [	if applies])
(Abbreviations: system Painstonethy Subsyst: none/ Classes: Root Bottom (RB.), Unconsolidated bottom (UB.), Acuses Bed (AB), Unconsolidated Shore (US.), Most-disher Westand (ES), Forested Westand (FO) Systems Lacurative (U.), Subsyst: Umnets (CB) Classes: RB, UB, AB! Subsystem Uncore (Of Subsyst: Uncore of Painstonethy Colors (S.), Service (US.), Evil Subsyst: Umnets (CB) Classes: RB, UB, AB! Subsystem Uncore (Of Classes: RB, UB, AB! Subsystem Un					on, first col.; USF	T			% of AA
(Abbreviations: system Patronery's Subsyst: nominic Classes: Rook Bottom (RB.), Unconsolidated bottom (UB.), Aquase Bed (UB). Unconsolidated Shore (US.), Mass denien Western (DS. Stargett Western (Edw.), Early Systems; Lancettive (LD.), Subsyst: Limited (DS.), Causer, RB.), UB. All Subsystems Uniform (Of Classes: RB.), Ub. All Subsystems (O	Depressimil	Palustri	e			Em	DJF 6	E	957
Emergent (Weltene (EM), Sont-Shade Weltene (EX), Sont-Shade Westerne (EV) System: Lacutions (LX, Subsyster: Liver Personal (SX), Seases; RB, UR, AB, US, EW System; Uponer Personal (SV) Whest Regulars; Personal Placed Personal (SV), Seases; RB, UR, AB, US, EW System; Uponer Personal (SV). Whest Regulars; Personal Placed Personal (SV), Seases; RB, UR, AB, US, EW System; Uponer Personal (SV). Whest Regulars; Personal Placed Personal Proceed (I), Andrew (II), Andrew (II), Andrew (II), Andrew (II), Andrew (II), Andrew (III), Andrew (		Pueria	2	laver p	rennia	uB.	A,J	E	590
Emergent Westand (EM), Sorth-Shinde Westand (SS), Forested Westand (FO) System's Lacuritone (LV, Subsystet: Lever Pennancial (SV) Classes: RB, UR, AB, US, EM System's Revience (US) Semigermenerity Frooded (C), Semigerme		+	_			-		-	+-
Emisjent Westand (EM), Sonn-Shinch Westand (SS), Forested Westand (FO) Systam Lacusinne (LY, Subsyst: Cure President (PC) Classes: RB, UR, AB (US, EW) State Washington (Upon President (PC) Classes: RB, UR, AB (US, EW) State (MS) with respective President (PC). Sense: President (PC) Sen			$\neg$			1			1.
imagent Welland (EM) South-Shock Welland (SS), Forested Welland (FO) System Lacustion (LV, Subsystet Current Personal (FO) Classes: RB, UR, AB (JB, UR), BB (JB, UR) Set Workshopper (Classes: RB, UR, AB (JB, UR), BB (JB, UR) Set Workshopper (Classes: RB, UR, AB (JB, UR) Set Workshopper (RB,									1
1. Regarding disturbance: (use matrix below to determine [circle] appropriate response)  Conditions within AA  Predominant conditions adjacent to (within 500 feet of) AA  Land managed in predominantly natural state, is not grazed, harded, but moderately logged, or otherwise convented, consens fer mads or buildings  AN option and is managed in predominantly natural state, is not grazed in predominant controlled to the predominant of the predominant controlled to the predominant of the predominant controlled to the predominant of the predominant controlled to the predomin	11. Estimated relative abunda (Circle one) U Comments:	nce: (of similarly classif	led sites within		Montana Watersh		see definitions)	*	
Conditions within AA  Predominant conditions adjacent to (within 500 feet of) AA  Land managed in predominantly natural state, is not grazed, hyred, logged, or otherwise convened, does not contain mass of buildings of the predominantly natural state, is not grazed, hayed, logged, or otherwise convened, does not contain mass of buildings of the predominantly natural state, is not grazed, hayed, logged, or otherwise convened, does not contain mass of buildings of the predominant practice of the		: (use matrix below to d	etermine (circ	le) appropriate re	sporse)				
A colors and is managed in predominantly natural state, is not grazed, hayed, logged, or otherwise convened, does not contain does not contain does not contain and is managed in predominantly natural state, is not grazed or hayed, logged, or otherwise convened, does not contain does not contain does not contain and is managed in predominantly natural state, is not grazed or hayed, logged, or otherwise convened, does not contain does not contain and is or beautique businengs.  It moderate disturbance   low disturbance   low disturbance   low disturbance   moderate disturbance   high disturbance				Predom	inant conditions ac				
modes or desegged, or otherwise converted; does not contact modes or desegged, or otherwise converted; does not contact modes or desegged butterpass.  An not cultivated, but moderately grazed or hayed or selectively minor clearing, fill placement, or hydrological alteration, contains few reads or buildings.  An cultivated or heavily grazed or logged; subject to relatively minor clearing, fill placement, grading, cleaning, or hydrological alteration; high disturbance high distur			natural state; is logged, or other	not grazed, hayed, rwise converted;	grazed or hayed or or has been subject	selectively log to minor dea	and German and	tangal fill placer rological alterat	ment, grading.
lii. Provide brief descriptive summary of AA and surrounding land use/habitat:    Provide brief descriptive summary of AA and surrounding land use/habitat:	grazed, hayed, logged, or otherwise conv		low disturba	nce	low disturbance	•	moderate di	sturbance	<u> </u>
Comments: (types of disturbance, intensity, season, etc.): MITING C(QUS)  II. Prominent weedy, allen, & introduced species (including those dot domesticated, feral): (list)	ogged; or has been subject to relatively r	minor clearing, fill	moderate di	sturbance	moderate distu	rbance			
III. Provide brief descriptive summary of AA and surrounding land use/habitat:    III. Provide brief descriptive summary of AA and surrounding land use/habitat:   III.	substantial fill placement, grading, cleans		high disturb	ance	high disturband	:e	high disturb	ance	
III. Provide brief descriptive summary of AA and surrounding land use/habitat: Lenton He mire.  13. Structural Diversity: (based on number of "Cowardin" vegetated classes present (do not include unvegetated classes), see #10 above)  # of "Cowardin" vegetated classes present in AA (see #10)  2 3 vegetated classes (or 2 vegetated classes (or 1 if forested)	Comments: (types of distu	orbance, intensity, season, & introduced specie	on, etc.): M	ining clau	sticated, feral): (	list)	ne neticed		
# of "Cowardin" vegetated classes present in AA (see #10)  ≥ 3 vegetated classes (or ≥ 2 if one is forested)  2 vegetated classes (or 1 if forested)	III. Provide brief descript	ive summary of AA an	d surroundir	ng land use/hab	ut: ben-	tonite	mire		
2 2 if one is forested) 1 if forested)	13. Structural Diversity: (base	d on number of "Coward	in" vegetated	d classes present	(do not include un	vegetated (	classes), see #10 a	bove)	=
Ratios (circle) Moderate Low	# of "Cowardin" vegetated class	ises present in AA (see	=10)					s 1 vegetate	d class
many factory [ many factors ] from [ many factors ]	Rating (circle)			High		Moderate		(m)	

### SECTION PERTAINING to FUNCTIONS & VALUES ASSESSMENT LAND & WATER B-17



14A, Habitat for Federally List							
<ol> <li>AA is Documented (D) or S</li> </ol>		ontain (circle one i	based on definitions	contained in instruc	tions):		
Primary or critical habitat (II		D S					
Secondary habitat (list spe		D S					
Incidental habitat (list spec	les)	D S					
No usable habitat		DS					
II. Rating (use the conclusions this function)	from i above and t	the matrix below t	o arrive at [circle] the	e functional points a	nd rating [H = high	, M = moderate, or L	= low] for
Highest Habital Level	doc./primary	sus/primary	doc./secondary	sus./secondary	doc./incidental	sus./incidental	None
Functional Points and Rating	1 (H)	.9 (H)	.8 (M)	.7 (M)	.5 (L)	.3 (L)	0(L)
Sources for documented use (e.	g. observations, re	cords, etc):					
14B. Habitat for plant or anima						listed in 14A above)	
I. AA is Documented (D) or S			based on definitions	contained in instruc	tions):		
Primary or critical habitat (I		D &	-	- 1 1			
Secondary habitat (list spe		<u> </u> ©	3 - DW	art Sha	- W		
Incidental habitat (list spec	:105)	D 8					
No usable habitat		DS					
II. Rating (use the conclusions this function)	from i above and	the matrix below t	o arrive at [circle] th	e functional points a	nd rating [H = high	, M = moderate, or L	= low] for
Highest Habitat Level	doc./primary	sus/primary	doc./secondar	sus /secondary)	doc./incidental	sus./incidental	None
Functional Points and Rating	1 (H)	.8 (H)	.7 (M)	(.6 (M)	2(L)	.1(L)	0(L)
Sources for documented use (e.		and the state of	NNHA				
			ラクオト				
14C. General Wildlife Habitat  I. Evidence of overall wildlife		rcle substantial, n	noderate, or low bas	ed on supporting evi	dence):		
Substantial (based on any of th	a fallacian fabori	n.		tau thank	on any of the follo	wina (chack)):	
Substantial (based on any of the observations of abundant was	ie tollowing [check	ij).	dudae envended)			ons during peak use p	neriorie
abundant wildlife sign such					wildlife sign	and doining poor, doe j	JC 1003
_ presence of extremely limiti				sparse a	djacent upland foo	d sources	
interviews with local biologic	sts with knowledge	e of the AA	no sumsonomy area	interview	s with local biologis	sts with knowledge of	f the AA
Moderate (based on any of the	following [check]):						
_ observations of scattered w			vely few species dur	ing peak periods			
<ul> <li>common occurrence of wild</li> </ul>	life sign such as :	scat, tracks, nest	structures, game tra	ils, etc.			
adequate adjacent upland f	ood sources		•				
interviews with local biologic	sts with knowledge	e of the AA					
II. Wildlife habitat features (wo	visina from ton to b	vottom circle see	roorista AA attributa	e in matrix to arrive :	at exceptional (F)	high (H) moderate (I	d) or low
(L) rating. Structural diversity is	from #13 For ele	ess couer to be a	osidered exercises	Series of Austrian e	laceae must ha wit	thin 20% of each other	er in terms
of their percent composition of the	A ΔΔ (see #10)	Abbroxistions for	risidente everily Cisi	noe ara as follous: E	/P = nemanent/n	erennial: S/I =	
seasonal/intermittent; T/E = tem							_
Joseph Manufacture of 115 - (61)	one proprietate,	a ~ A ~ ersent is	occ motrococcio ici i	OTO GO CONTINUOS OF	orono termoji/		4

Structural diversity (see #13)				His	gh							Mode	erate				(	Lov	ン	
Class cover distribution (all vegetated classes)		Even			Uneven			Even					Unev	en		Even 1				
Duration of surface water in ≥ 10% of AA	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	Α	P/P	S/I	T/E	^		S/I	T/E	Ľ
Low disturbance at AA (see #12i)	E	E	Ε	н	E	E	Н	н	E	н	н	М	E	н	м	M	E	н	м	ľ
Moderate disturbance at AA (see #12i)	н	н	н	н	н	Н	н	м	Н	н	М	М	н	М	M	L	$\odot$	М	L	Ľ
High disturbance at AA (see #12i)	М	м	м	L	М	М	L	L	М	м	L	L	M	L	L	-	٦	L	r	Ľ

III. Rating (use the conclusions from i and ii above and the matrix below to arrive at [circle] the functional points and rating [E = exceptional, H = high, M =

Evidence of wildlife use (i)		Wicke habital feat	ures rating (ii)	
	Exceptional	High	Moderate	Low
Substantial	1 (E)	.9 (H)	.8 (H)	.7 (M)
Moderate	.9 (H)	.7 (M)	.5 (M)	.3 (L)
Minimal	.6 (M)	(M) A	.2 (L)	.1 (L)

P/D= clay holds water in pond

14D. General Fish/Aquatic Metrital Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvent or other barrier, etc.]. If the AA is not or was not historically used by fish due to lack of habitat, excessive gradient, etc., arcie NA here and proceed to the next function. If fish use occurs in the AA but is not desired from a resource management perspective [such as fish use within an irrigation canal], then Habitat Quality [i below] should be marked as "Low", applied accordingly in ii below, and noted in the comments.)

. Habitat Quality (circle appropriate AA attributes in matrix to arrive at exceptional (E), high (H), moderate (M), or low (L) quality rating

Duration of surface water in AA	Perm	nanent / Pen			onal / Intern		Temporary / Ephemerai			
Cover - % of waterbody in AA containing cover objects such as submerged logs, large rocks & boulders, overhanging banks, floating-leaved vegetation, etc.	>25%	10-25%	<10%	>25%	10-25%	<10%	>25%	10-25%	<:0%	
Shading - >75% of streambank or shoreline within AA contains riparian or wetland scrub-shrub or forested communities	E	E	Н	Н	Н	М	М	М	M	
Shading – 50 to 75% of streambank or shoreline within AA contains rip. or wetland scrub-shrub or forested communities	н	Н	М	М	М	М	М	L	L .	
Shading - < 50% of streambank or shoreline within AA contains rip. or wetland scrub-shrub or forested communities	н	М	М	М	L	L	L	,A.	L	

ii. Modified Habitat Quality (Circle the appropriate response to the following question. If answer is Y, then reduce rating in I above by one level [E = H, H = M, M = L, L = L]). Is fish use of the AA precluded or significantly reduced by a culvert, cike, or other man-made structure or activity or is the waterbody included on the MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or equation life support?

Y

N

Modified habitat quality rating = (circle)

E

H

M

L

iii. Rating (use the conclusions from i and ii above and the matrix below to arrive at [circle] the functional points and rating [E = exceptional, H = high, M = moderate, or L = low) for this function)

Types of fish known or		Modified Hab	pitat Quality (ii)	
suspected within AA	Exceptional	High	Moderate	Low
Native game fish	1 (E)	.9 (H)	.7 (M)	.5 (M)
Introduced game fish	.9 (H)	.8 (H)	.6 (M)	.4 (M)
Non-game fish	.7 (M)	.6 (M)	.5 (M)	.3 (L)
No fish	.5 (M)	.3 (L)	.2 (L)	.1 (L)

#### Comments:

14E. Flood Attenuation: (applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, circle NA here and proceed to next function.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high. M = moderate, or L = low] for this function)

Estimated wetland area in AA subject to periodic flooding	≥ 10 acres		>10. >2 acre	5	≤2 acres			
% of flooded wetland classified as forested, scrub/shrub, or both	75%   25-75% . <	5% 75	6 1 25-75%	<25%X	75%   25-7	5% <25%		
AA contains no outlet or restricted outlet	1(H)   .9(H)6	(M) .8/1	4) : .7(H)	.5(M) 1	.4(M) ! .3(	L) .2(L)		
AA contains unrestricted outlet	.9(H)   .8(H)   .5	(M) 70	(M)3. 1 (H	(4(1))	.3(L)   .2(	L) .1(L)		

II. Are residences, businesses, or other features which may be significantly damaged by floods located within 0.5 miles downstream of the AA (circle)? Comments:

Y/N)

14F. Short and Long Term Surface Water Storage: (Applies to wetlands that flood or good from overbank or in-channel flow, precipitation, upland surface flow, or groundwater flow. If no wetlands in the AA are subject to flooding or ponding, circle NA here and proceed with the evaluation.)

Rating (working from too to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high. M = moderate, or L = low] for this
function. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see

Estimated maximum acre feet of water contained in wedends within the AA that are subject to periodic flooding or ponding	T	>5 acre fe	e:		5. >1 acre	:ee:	≤1 acre foot				
Duration of surface water at wetlands within the AA	P/P	S/I	T/E	(PIP)	I S/I	· T/E	PIP	Sil	T/E		
Wetlands in AA flood or pend ≥ 5 out of 10 years	1(H) I	.9(H)	.S(H)	(.87Ai)	.e(M)	.5(M)	.4(M)	.3/L)	.2(L)		
Wetlands in AA flood or cond < 5 out of 10 years	1 .9(H)	.8(H)	7(M)	.7(M)	.5/M)	.4(%)	.3(L)	.2(L)	.1(L)		

#### Comments:

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive excess sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, circle NA here and proceed with the evaluation.)

I. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function.

Sediment, nutrient, and toxicant input levels within AA	deliver or co substan	low to or:poutially is	moderate inds such mpaired. I or toxican	leve that Mino	s of se other for sedim signs of	dime uncti enta	ith potential to ents, nutrients, ions are not tion, sources of trophication	Waterbody or developmen nutrients, or t use with p nutrients, o substantially nutrients or t	t for "p textean otentia r comp r impai	robable ca its or AA ro to deliver counds suc ired. Major	eceive high that sedio	related to es or sum levels of the at other fur mentation	to se round sedin incident	diment, ding land ments, ons are cross of
% cover of wetland vecetation in AA	1	≥ 709	%	$\neg$	$\overline{}$	۲-	70%	1 2	70%		1	<	709	6
Evidence of flooding or conding in AA	l Yes	1	No		(Yes	フ	No	Yes	:	No	i	Yes		No
AA contains no or restricted outlet	1 (H)	T	.8 (H)		.7 (M		.5 (M)	.5 (M)	- 1	.4 (M)	1	.3 (L)	ī	.2 (L)
AA contains unrestricted outlet	.S (H)	1	.7 (M)	1	66 (M)	1	.4 (M)	.4 (M)		.3 (L)		.2 (L)		.1 (L)

### Comments:

14H Sediment/Shoreline Stabilization: (applies only if AA occurs on or within the banks or a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If does not apply, circle NA here and proceed to next function)

Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [E = exceptional, H = high, M = moderate, or L = local for this function.

% Cover of wetland streambank or	Duratio	n of surface water adjacent to rooted ve	vegetation				
shoreline by species with deep, binding rootmasses	permanent / perennia	seasonal / intermittent	Temporary / ephemeral				
≥ 65%	1/H)	.9 (H)	.7 (M)				
35-64%	(.7 (M)	.6 (M)	.5 (M)				
< 35%	.3 (L) '	.2 (L)	.1 (L)				

#### Comments:

141. Production Export/Food Chain Support:

I. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high; M = moderate, or L = low] for this function. Factor A = acreage of vegetated component in the AA; Factor B = structural diversity rating from #13; Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P = permanent/perennial; S/I = seasonal/intermittent; T/E /A= temporary/ephemeral or absent [see instructions for further definitions of these terms].)

Α		Vegeta	sted comp	conent >	5 acres		Vegetated component 1-5 acres							Vegeta	etated component <1 acre				
В	Hi	gh	Mod	erate	L	ow	H	igh	Mod	erate	Lo	w	H	gh	(Mod	erate	Lo	<b>W</b>	
C	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	(Yes	8	Yes	No	
P/P	1H	.9H	.9H	.8H	.8H	.7M	.9H	.8H	H8.	.7M	.7M	.6M	.7M	.6M	(6M)	.4M	.4M	.3L	
S/I	.9H	.8H	.8H	.7M	.7M	.6M	.8H	.7M	.7M	.6M	.6M	.5M	.6M	.5M	.5M	.3L	.3L	.2L	
T/E/	.8H	.7M	.7M	.6M	.6M	.5M	.7M	.6M	.6M	.5M	.5M	.4M	.5M	.4M	.4M	.2L	.2L	.1L	
A																			

#### Comments:

14.J. Groundwater Discharge/Recharge: (Check the indicators in i.e.  I. Discharge Indicators  Springs are known or observed  Vegetation growing during dormant season/drought  Wetland occurs at the toe of a natural slope  Seeps are present at the wetland edge  AA permanently flooded during drought periods  Wetland contains an outlet, but no inlet  Other	B. ii below that apply to the AA)  II. Recharge Indicators Permeable substrate present without underlying impeding layer Wetland contains inlet but no outlet Other
III. Rating: Use the information from i and ii above and the table belo	w to arrive at [circle] the functional points and rating [H = high, L = low] for this function.
Criteria	Functional Points and Rating
AA is known Discharge/Recharge area or one or more indicators of D/	R present 1 (H)
No Discharge/Recharge indicators present	1(L)

AA is known Discharge/Recharge area or one or more indicators of D/R present	1 (H)
No Discharge/Recharge indicators present	.1 (L)
Available Discharge/Recharge information inadequate to rate AA D/R potential	ATA (Unknown))

### Comments:

14K. Uniqueness:

Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function.

Replacement potential	AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland or plant association listed as "S1" by the MNHP		AA does not contain previously cited rare types and structural diversity (#13) is high or contains plant association listed as "S2" by the MNHP			AA does not contain previously cited rare types or associations and structural diversity (#13) is low-moderate			
Estimated relative abundance (#11)	rare	common	abundant	rare	common	abundant	rare	(common	abundant
Low disturbance at AA (#12i)	1 (H)	.9 (H)	.8 (H)	.8 (H)	.6 (M)	.5 (M)	.5 (M)	4(M)	.3 (L)
Moderate disturbance at AA (#12i)	.9 (H)	.8 (H)	.7 (M)	.7 (M)	.5 (M)	.4 (M)	.4 (M)	.3(1)	.2 (L)
High disturbance at AA (#12i)	.8 (H)	.7 (M)	.6 (M)	.6 (M)	.4 (M)	.3 (L)	.3 (L)	.2 (L)	.1 (L)

### Comments:

14L. Recreation/Education Potential: I. Is the AA a known rec./ed. site: (circle) Y(N () yes, rate as [circle] High [1] and go to ii; if no go to iii)

II. Check categories that apply to the AA: \_\_\_Educational/scientific study; \_\_\_Consumptive rec.; \_\_\_Non-consumptive rec.; \_\_\_Other

III. Based on the location, diversity, size, and other site attributes, is there strong potential for recJed. use? (If yes, go to ii, then proceed to iv, if no, then rate as [circle] Low [0.1])

v. Rating (use the matrix below to arrive at lorrole) the functional points and rating IH = high, M = moderate, or L = low) for this function.

Ownership	Ovisturbance et (Circle) the functional points and rating (H = high), M = histoerate, or c = bw) for this functional points and rating (H = high), M = histoerate, or c = bw) for this functional points and rating (H = high), M = histoerate, or c = bw) for this functional points and rating (H = high), M = histoerate, or c = bw) for this functional points and rating (H = high), M = histoerate, or c = bw) for this functional points and rating (H = high).				
	low	moderate	high		
public ownership	1 (H)	(\$(M) )	.2 (L)		
nrivate ounership	7 (M)	3(1)	.1 (L)		



### **FUNCTION & VALUE SUMMARY & OVERALL RATING**

Function & Value Variables	Rating	Actual Functional Points	Possible Function al Points	Functional Units; (Actual Points x Estimated AA Acreage) ,69
A. Listed/Proposed T&E Species Habitat	11	.0	1	
B. MT Natural Heritage Program Species Habitat	·m	.6	1	
C. General Wildlife Habitat	m	-4	1	
D. General Fish/Aquatic Habitat	NA		-	
E. Flood Attenuation	m	.4	1	•
F. Short and Long Term Surface Water Storage	1	.8	1.	
G. Sediment/Nutrient/Toxicant Removal	m	.6	1	
H. Sediment/Shoreline Stabilization	m	1,7	1	
I. Production Export/Food Chain Support	m	1.6	1	
J. Groundwater Discharge/Recharge	NA		+	,
K. Uniqueness	L	,3	1.	
L. Recreation/Education Potential	m	, 5	1	
Totals:		4,9	10	3.38

4990

OVERALL ANALYSIS AREA (AA) RATING: (Circle appropriate category based on the criteria outlined below)

(III)

Category I Wetland: (Must satisfy one of the following criteria; if does not meet criteria, go to Category II)  Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; or  Score of 1 functional point for Uniqueness; or  Score of 1 functional point for Flood Attenuation and answer to Question 14E.ii is "yes"; or  Total actual functional points > 80% (round to nearest whole #) of total possible functional points.
Category II Wetland: (Criteria for Category I not satisfied and meets any one of the following criteria; if not satisfied, go to Category IV)  Score of 1 functional point for Species Rated S1, S2, or S3 by the MT Natural Heritage Program; or Score of .9 or 1 functional point for General Wildlife Habitat; or Score of .9 or 1 functional point for General Fish/Aquatic Habitat; or "High" to "Exceptional" ratings for both General Wildlife Habitat and General Fish/Aquatic Habitat; or Score of .9 functional point for Uniqueness; or Total Actual Functional Points > 65% (round to nearest whole #) of total possible functional points.
Category III Wetland: (Criteria for Categories I, II or IV not satisfied)
Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; if does not satisfy criteria go to Category III)  "Low" rating for Uniqueness; and  "Low" rating for Production Export/Food Chain Support; and  Total actual functional points < 30% (round to nearest whole #) of total possible functional points

## **Appendix C**

## REPRESENTATIVE PHOTOGRAPHS

MDT Wetland Mitigation Monitoring American Colloid Mitigation Site Alzada, Montana





**Location:** A **Photo Frame:** 10 **Description:** Outlet **Compass Reading:**  $2^{\circ}$ 



**Location:** B **Photo Frame:** 11 **Description:** Upland buffer **Compass Reading:** 348°



**Location:** C **Photo Frame:** 12 **Description:** Across wetland and beginning of transect **Compass Reading:** 118°



**Location:** D **Photo Frame:** 16 **Description:** Downstream of dam **Compass Reading:** X°



**Location:** E **Photo Frame:** 14 **Description:** From dam across wetland **Compass Reading:** 186°



**Location:** F **Photo Frame:** 15 **Description:** From dam across wetland **Compass Reading:** 220





**Location:** G **Photo Frame:** 12 **Description:** Across wetland and beginning of transect **Compass Reading:** 118°



### Appendix D

# MDT REVISED PRELIMINARY FIELD REVIEW REPORT MDT ADDENDUM ATTACHMENTS (PLAN SHEETS)

MDT Wetland Mitigation Monitoring American Colloid Mitigation Site Alzada, Montana



### RECEIVED

JAN 06 1999



## ENVIRONMENTAL

Montana Department of Transportation Helena, Montana 59620-1001



### Memorandum

To:

Carl S. Peil , P.E.

Preconstruction Engineer

From:

Gordon J. Stockstad

Resources Bureau Chief

Date:

December 23, 1998

Subject:

NH STPS BR 6(10)

Watershed 16 American Colloid Control No. 1396

We request that you approve the Revised Preliminary Field Review Report for the subject project.

Approved D. John BlackER

Date 1/4/99

Carl S. Peil, P.E. Preconstruction Engineer

We are requesting comments from the following individuals, who have also received a copy of the report. We will assume their concurrence if no comments are received by two weeks from the above date.

### Distribution:

C. S. Peil

J. M. Marshik

D. R. McIntyre

R. E. Williams

B. F. Juvan

M. P. Johnson

J. D. Blacker

FHWA

Precon File

P. Saindon

B. A. Larsen

D. P. Dusek

K. H. Neumiller

T. E. Martin

R. D. Tholt

S. Prestipino

Mark A. Wissinger



### Revised Preliminary Field Review Report

A field review of the subject project was held in September 18, 1997, with the following people in attendance:

R. E. Mengel	Engineering Services Supr.	Glendive
J. S. Michel	Hydraulics Section	Helena
Larry Sickerson	Environmental Services	Helena
Tim Olson	Environmental Services	Helena
Tom Atkins	Road Design	Helena
John Moran	Geotech	Helena

### Introduction

A preliminary field review was previously conducted for this project. The original Preliminary Field Review Report that went out did not request approval from Carl Peil nor did it request comments. The purpose of this Revised Preliminary Field Review Report is to follow the proper procedures for the purpose of activating activities from the Project Management System flow chart for Wetland Mitigation and to include comments that were received after the document had been circulated. The intent of this Report is also to bring everyone up to date on where this project is at and where it is going. Some of the activities on the PMS Wetland Mitigation flow chart have already been completed and will need to be carded out when this project comes around for overrides.

### Purpose

As a result of wetland impacts associated with the Alzada - East & West (STPP 23-3(6)130, Control No. 2150), and Alzada South (STPS 326-1(1)0, Control No. 2299) highway projects, MDT is proposing mitigation efforts on Montana School Trust Land. It is intended to tie the construction of this mitigation project to Alzada - East and West for letting purposes. The proposed ready date for the Alzada-East and West project is December, 1999.

To mitigate impacts on the projects mentioned above, MDT is working with American Colloid, the Department of Natural Resources and Conservation (Eastern Land Office), and the Department of Environmental Quality (Reclamation Division) to create wetland habitat. MDT and American Colloid will work together to amend American Colloids reclamation plan to reflect this project. Department of Environmental Quality - Reclamation Division must approve the plan.

MDT is anticipating a mitigation site of approximately 5 acres in size for the wetland impacts associated with the previously mentioned projects. The 5 acres of wetlands will



Carl S. Peil Page 3 December 23, 1998

also be surrounded by a 10 acre buffer zone of upland vegetation. The entire 15 acres will be fenced as an exclosure to livestock grazing. This exclosure will need to be sheep-proof.

Project Location and Limits

The wetland mitigation site is located in Carter County approximately 2 miles south and 7 miles west of Alzada, MT. This site is located on Montana School Trust Land in the Lot 7, Lot 10, Lot 11 of Section 36, Township 9 South, Range 58 East, M.P.M., as shown on the attached project location map.

Site Description

The wetland mitigation site is located on land owned by the Montana Department of Natural Resources and Conservation which is leased to the American Colloid Mining Company of Belle Fourche, SD. The 15 acre site was mined for bentonite clay prior to the 1971 Open Cut Mining Act and is in need of reclamation. The topography of the site is typical of open cut mining activities.

Design

The design for this proposed mitigation site will be provided by MDT's Road Design Section. It is anticipated that no excavation will be necessary. A dike approximately 58 meters in length will need to be constructed to impound the water for this site. Other design criteria will be based on the water budget analysis provided by the Hydraulics Section. Environmental Services will be the lead unit for this project.

#### Construction

MDT will be responsible for the project letting, construction, and project manager. This project will be tied to the Alzada - East & West project for letting and construction and has an anticipated ready date of December, 1999.

Hydraulics

The drainage patterns as shown on existing topographic maps for the watershed associated with this site have been altered due to mining activities. American Colloid provided



Carl S. Peil Page 4 December 23, 1998

MDT with a drainage area of 167 acres of surrounding watershed. Jerry Michaels is working on a water budget for the proposed site.

Water Rights

The Department of Natural Resources and Conservation will be responsible for acquiring the water rights for this site.

Geotechnical Considerations

The Geotechnical Section has completed their field investigation. This consisted of five borings at the mitigation site which revealed clay soils underlain by shale. This material is suitable for the creation of a wetland. These soils are highly erodible therefore the design should avoid an earthen spillway for the emergency outlet.

Right-of Way

The mitigation site lies within the boundaries of Montana School Trust Land and will be managed and maintained by the DNRC. A wetland conservation agreement between DNRC and MDT will be drafted by MDT for perpetuity. It needs to be addressed in this document whom the responsible party will be for removal of the sheep proof fence once the wetland is functional. It is anticipated the R/W Plans Section will review documents prepared by the DNRC. If the easement or legal description is to be provided by MDT, R/W should be notified so they can request the appropriate survey.

Environmental Considerations

No significant environmental effects or issues were identified. An appropriate environmental evaluation and document will be prepared by MDT through Environmental Services for this project. The project should have minimal effect on the habitat of any threatened or endangered species. A hazardous waste analysis and a Cultural Resource site assessment will be needed for the environmental documentation.

Field Survey

A topographic survey of the area has been performed. Additional survey for the legal description for the easement



Carl S. Peil Page 5 December 23, 1998

may be required. Right-of-Way Plans Section will be notified so they can request the appropriate survey.

### Legal

Legal Services will need to review all agreements with American Colloid and DNRC.

#### Estimated Cost

The estimated cost to construct this project is \$15,500. This estimate includes Preliminary Engineering, Acquisition of Right-of-Way, and Construction costs. As soon as more information is available a modification to the programming will be made.

#### Attachment

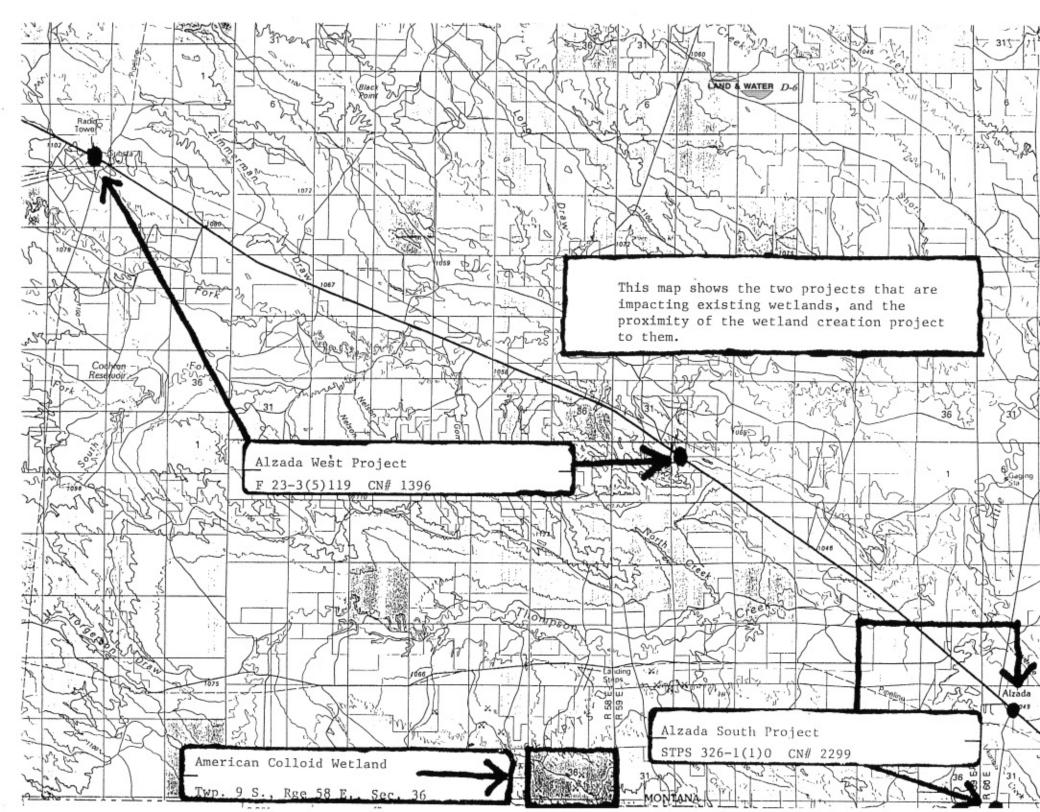
### GJS:DSA

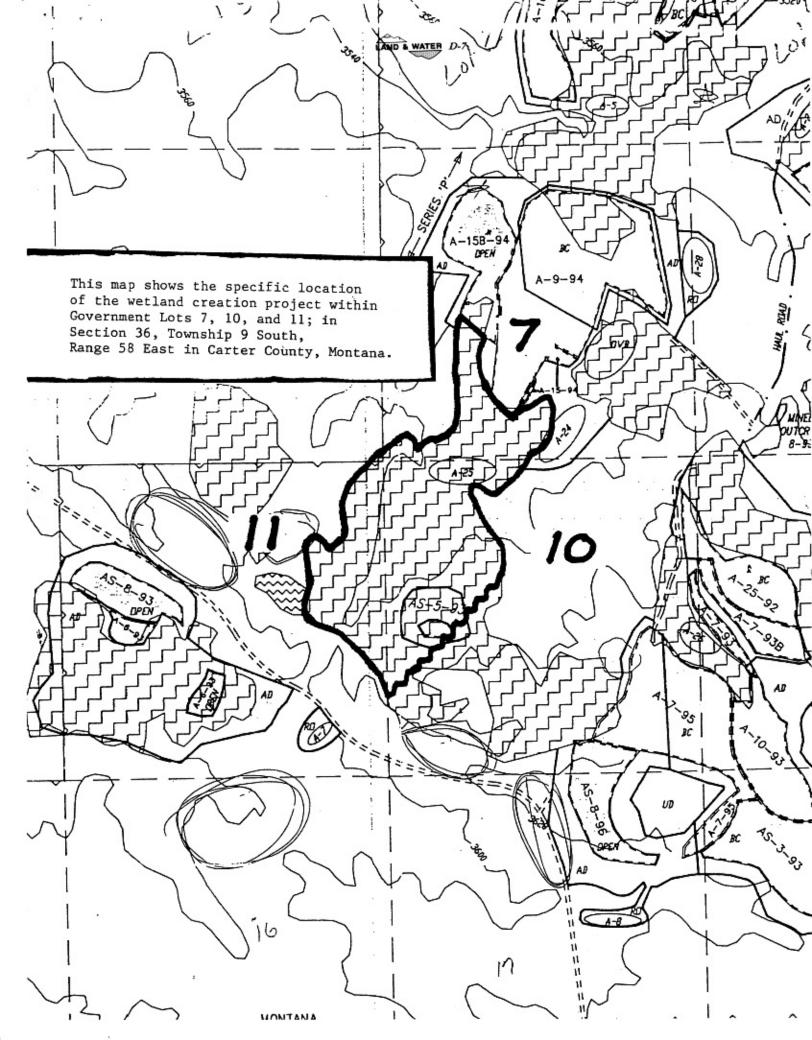
#### Distribution:

- C.S. Piel Preconstruction
- M. Johnson Glendive District
- K.H. Neumiller Materials
- T.E. Martin Right of Way
- J.M. Marshik Environmental
- K.M. Helvik Environmental
- R.E. Williams Road Design
- B.F. Juvan Project Management
- P. Saindon Planning
- D.W. Jensen Planning
- J.J. Moran Geotechnical
- D. Paulson FHWA

Environmental File

Mark A. Wissinger - Contract Plans Supervisor





LAND & WATER D-8

## MONTANA DEPARTMENT OF TRANSPORTATION HELENA, MONTANA 59620-1001

DATE ISSUED: July 18, 2001

<u>ADDENDUM</u>

For the Following Project To Be Let On

July 26, 2001

 NH-STPS-BR 6(10) Watershed 16 – Wetland Mitigation

ADDENDUM NO. 1 ATTACHMENT NO. 1-

Revised Schedule of Items, deleting item 203 100 000

Unclassified Excavation, and adding new item 203 300 000 Embankment In Place 2,115.0 M3.

ATTACHMENT NO. 2-

Revised Special Provision 6, Dike Embankment.

ATTACHMENT NO. 3-

Revised Plan Sheet 3, revision of Grading Frame.

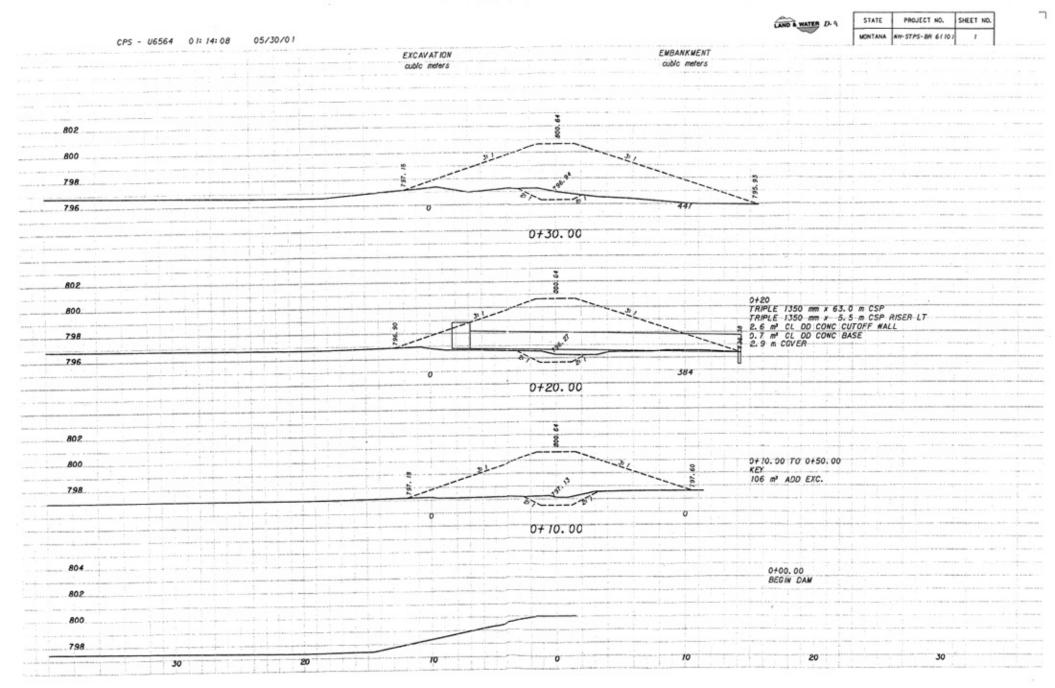
### INSTRUCTIONS - READ CAREFULLY

Load the electronic amendment file while in the opened project file to apply the addendum. In order to be responsive, the Schedule of Items printout on projects with addendums must show the addendum(s) applied at the bottom of each page.

Revised documents supersede and replace the documents you now have. New documents supplement the documents you now have. Make the necessary changes in

your bidding documents.

Mark/A. Wissinger, P.E. Contract Plans Supervisor



### TABLE OF CONTENTS

### NOTES

ROAD PLANS	SHEET NO.
TITLE SHEET	1
TABLE OF CONTENTS	2
NOTES	2
SUMMARIES GRADING FENCING TOPSOL & SEEDING CUVERTS	3
DETAILS	4
DAM SIDE VIEW	4
DAM END VEW CONCRETE BASE	;
PLAN & PROFILE	5
CROSS SECTIONS	1-2

### PROPERTY CORNER

THE PROPERTY CORNER LOCATED WITHIN THE EASEMENT WILL BE REMOVED AND RESET BY STATE FORCES.

### BACKSLOPE

GRADE AND SHAPE BACKSLOPES OF THE WETLAND SITE TO 4: 1 AS DIRECTED BY THE ENGINEER. THE COST OF THE BACKSLOPE WORK IS INCLUDED IN THE OTHER GRADING ON THE PROJECT.

### CLEARING AND GRUBBING

CLEAR AND GRUB TO CONSTRUCTION LIMITS. INCLUDE THE COST OF CLEARING AND GRUBBING IN OTHER ITEMS.

**SUMMARY** 

ADDENDUM NO. 1 ATTACHMENT NO. 3

X = 9 = 2/5	STATE	PROJECT NUMBER	SHEET NO.
	MONTANA	NH-STPS-BR 6(10)	3

LAND & WATER D-H

		GRADIN	G			
	GL	blc meters				
STATION	EXCAVATION	CCAVATION EMB. IN REMARKS				
0+10.00						
	106		KEY			
0+50, 00						
0+00, 00						
0+57, 50		2006				
		109	TOPSOIL REPLACEMENT			
TOTAL	# 106	2115				

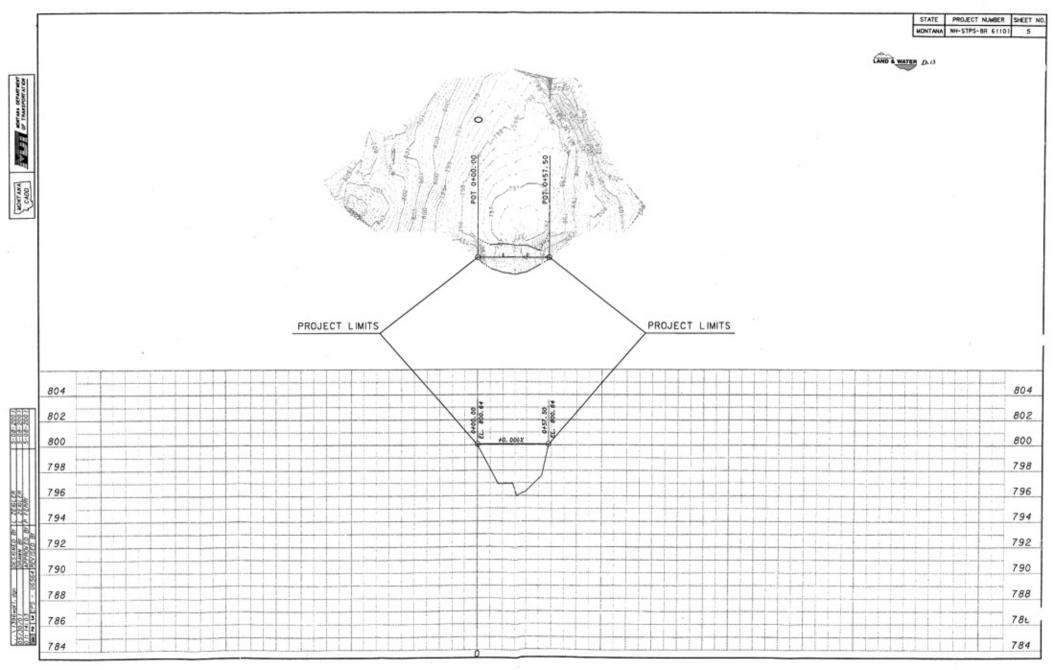
<sup>#</sup> FOR INFORMATION ONLY

				FENCING		
		me				
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		TYPE F5M	SINGLE PANEL	PANEL	G2	REMARKS
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		1 043	4	4	9. 6	
				1		
TO	TAL	1 043	4	4	9.6	

							ΤO	PS	OIL	_ &	S	EE	ΟI	NG*	
		cubic							h	ector	95				
ST	ATION	meters		_								_			DEMARKS
TOPSOIL		TOPSOIL SALVAGING	SEED						FERTILIZER					CONDITION SEEDBED	REMARKS
FROM	то	& PLACING	NO. 1	NO	. 2	NO.	3	NQ.	1	NG.	2	NO.	3		
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						$\vdash$			_						
т	OTAL	109	1	+	-				1	_				1	

<sup>\*</sup> SEEDING WILL BE HAND BROADCAST

						CI	ULVER	TS					
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STATION CSP END SECTIONS  1350 mm LEFT RIGHT	END SECTIONS			Zanaga yang	CULVERT	15 ASS 1		OF COVER IN	CLEAN CULVERT	IN PLACE mm X m	REMARKS		
					CULVERT BEDDING CLASS *DD* RIPRAP EXCAVATION MATERIAL CONCRETE		RIPRAP				RELAY	NEMANNS	
	1350 mm	LEFT	RIGHT				CLASS			meters			
0+20	68.5		SO.	100		3. 3				2.9			TRIPLE 1350 mm x 5.5 m CSP RISER
TOTAL	68.5	_	~	100		3.3		~		~			



### **Appendix E**

# BIRD SURVEY PROTOCOL GPS PROTOCOL

MDT Wetland Mitigation Monitoring American Colloid Mitigation Site Alzada, Montana



### **BIRD SURVEY PROTOCOL**

The following is an outline of the MDT Wetland Mitigation Site Monitoring Bird Survey Protocol. Though each site is vastly different, the bird survey data collection methods must be standardized to a certain degree to increase repeatability. An Area Search within a restricted time frame will be used to collect the following data: a bird species list, density, behavior, and habitat-type use. There will be some decisions that team members must make to fit the protocol to their particular site. Each of the following sections and the desired result describes the protocol established to reflect bird species use over time.

### **Species Use within the Mitigation Wetland: Survey Method**

Result: To conduct a bird survey of the wetland mitigation site within a restricted period of time and the budget allotment.

### Sites that can be circumambulated or walked throughout.

These types of sites will include ponds, enhanced historic river channels, wet meadows, and any area that can be surveyed from the entirety of its perimeter or walked throughout. If the wetland is not uncomfortably inundated, conduct several "meandering" transects through the site in an orderly fashion (record the number and approximate location/direction of the transects in the field notebook; they do not have to be formalized or staked). If a very small portion of the site cannot be crossed due to inundation, this method will also apply. Though the sizes of the site vary, each site will require surveying to the fullest extent possible within a set time limit. The optimum times to conduct the survey are in the morning hours. Conduct the survey from sunrise to no later than 11:00 AM. (Note: some sites may have to be surveyed in the late afternoon or evening due to time constraints or weather; if this is the case, record the time of day and include this information in your report discussion.) If the survey is completed before 11:00 AM and no additions are being made to the list, then the task is complete. The overall limiting factor regarding the number of hours that are spent conducting this survey is the number of budgeted hours; this determination must be made by site by each individual.

In many cases, binoculars will be the only instrument that is needed to identify and count the birds using the wetland. If the wetland includes deep water habitat that can not be assessed with binoculars, then a scope and tripod are necessary. If this is the case, establish as many lookout posts as necessary from key vantage points to collect the data. Depending on the size of the open water, more time may be spent viewing the mitigation area from these vantage points than is spent walking the peripheries of more shallow-water wetlands.

### Sites that cannot be circumambulated.

These types of sites will include large-bodied waters, such as reservoirs, particularly those with deep water habitat (>6 ft) close to the shore and no wetland development in that area of the shoreline. If one area of the reservoir was graded in such a way to create or enhance the development of a wetland, then that will be the area in which the ambulatory bird survey is conducted. The team member must then determine the length of the shoreline that will be surveyed during each visit.



As stated above in the ambulatory site section, these large sites most likely will have to be surveyed from established vantage points.

### Species Use within the Mitigation Wetland: Data Recording

Result: A complete list of bird species using the site, an estimate of bird densities and associated behaviors, and identification of habitat use.

### 1. Bird Species List

Record the bird species on the Bird Survey - Field Data Sheet using the appropriate 4-letter code of the common name. The coding uses the first two letters of the first two words of the birds' common name or if one name, the first four (4) letters. For example, mourning dove is coded MODO and mallard is MALL. If an unknown individual is observed, use the following protocol and define your abbreviation at the bottom of the field data sheet: unknown shorebird: UNSB; unknown brown bird (UNBR); unknown warbler (UNWA); unknown waterfowl (UNWF). For a flyover of a flock of unknown species, use a term that describes the birds' general characteristics and include the approximate flock size in parentheses; do not fill in the habitat column. For example, a flock of black, medium-sized birds could be coded: UNBB / FO (25). You may also note on the data sheet if that particular individual is using a constructed nest box.

### 2. Bird Density

In the office, sum the Bird Survey – Field Data Sheet data by species and by behavior. Record this data in the Bird Summary Table.

### 3. Bird Behavior

Bird behavior must be identified by what is known. When a species is simply observed, the behavior that it is immediately exhibiting is what is recorded. Only behaviors that have discreet descriptive terms should be used. The following terms are recommended: breeding pair individual (BP); foraging (F); flyover (FO); loafing (L; e.g. sleeping, roosting, floating with head tucked under wing are loafing behaviors); and, nesting (N). If more behaviors are observed that do have a specific descriptive word, use them and we will add it to the protocol; descriptive words or phrases such as "migrating" or "living on site" are unknown behaviors.

### 4. Bird Species Habitat Use

We are interested in what bird species are using which particular habitat within the mitigation wetlands. This data is easily collected by simply recording what habitat the species was initially observed. Use the following broad category habitat classifications: aquatic bed (AB - rooted floating, floating-leaved, or submergent vegetation); forested (FO); marsh (MA – cattail, bulrush, emergent vegetation, etc. with surface water); open water (OW – primarily unvegetated); scrubshrub (SS); and upland buffer (UP); wet meadow (WM – sedges, rushes, grasses with little to no surface water). If other categories are observed onsite that are not suggested here, we will make a new category next year.



E-2

### **GPS Mapping and Aerial Photo Referencing Procedure**

The wetland boundaries, photograph location points and sampling locations were field located with mapping grade Trimble Geo III GPS units. The data was collected with a minimum of three positions per feature using Course/Acquisition code. The collected data was then transferred to a PC and differentially corrected to the nearest operating Community Base Station. The corrected data was then exported to ACAD drawings in Montana State Plain Coordinates NAD 83 international feet.

The GPS positions collected and processed had a 68% accuracy of 7 feet except in isolated areas of Tasks .008 and .011, where it went to 12 feet. This is within the 1 to 5 meter range listed as the expected accuracy of the mapping grade Trimble GPS.

Aerial reference points were used to position the aerial photographs. This positioning did not remove the distortion inherent in all photos; this imagery is to be used as a visual aide only. The located wetland boundaries were given a final review by the wetland biologist and adjustments were made if necessary.

Any relationship of features located to easement or property lines are not to be construed from these figures. These relationships can only be determined with a survey by a licensed surveyor.

